

Date: Thursday, 22/01/2009 2:33:17 PM
 User: Julie Dawson

Process Sheet

Customer	CU-DAR001 Dart Helicopters Services		Drawing Name	BRACKET ASSEMBLY		
Job Number	45086		Part Number	D3121144		
Estimate Number	10290		Drawing Number	D3121 REV E		
P.O. Number			Project Number	N/A		
This Issue	22/01/2009	S.O. No. :	Drawing Revision	E		
Prsht Rev.	NC		Material			
First Issue	/ /	Type : MACHINED PARTS	Due Date	05/02/2009	Qty:	10 Um: Each
Previous Run	43604					
Written By						
Checked & Approved By	<u>JUL 09/01/22</u>					
Comment	Est Rev:Pick:A 04.02.18 New issue KJ/DS Est Rev:B ECN 1060 07-11-12 DD verified by:EC Est Rev:C New Dimensions for Blank Size 08-07-23 JLM Verified By:EC					

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :		
1.0	M174B1250X02000	17-4 SS Bar 1.250 x 2.00		
		Comment: Qty.: 0.3864 f(s)/Unit Total : 3.8640 f(s) Material: 17-4 SS Bar per AMS 5604/5643 (M17-4-B1.250 x02.000) Identify for D3121-114 Batch: <u>M109850</u>	<u>mf 09/01/23</u>	(10) (11)
2.0	BAND SAW	BAND SAW		
		Comment: BAND SAW Cut blanks: (1.250" x 2.000") 4.425" long	<u>mf 09/01/23</u>	(10) (11)
3.0	HAAS1	HAAS CNC VERTICAL MACHINING #1		
		Comment: HAAS CNC VERTICAL MACHINING #1		(10)
		1-Machine D3121-114 as per Folio FA330 and Dwg D3121 Identify as D3121-114		
		2-Deburr		
		3-Scribe batch number	<u>J.F. 09/01/26</u>	(10)
4.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE		
		Comment: INSPECT PARTS AS THEY COME OFF MACHINE	<u>J.F. 09/01/26</u>	(10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3121-144 PAR #: N/A Fault Category: Prod / Machined Part. NCR: Yes No DQA: P Date: 09/02/03
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: P Date: 09/02/03

NCR: 45086		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09/01/26	3.0	1 part is scrap, the part moved during machining Dim. .160", 1.590", 2.220, 2.540 are off by .045" Tool pushed against + He	J.F. 09/01/26 MMW 09/01/26 10/01/26	Scrap: No replace.	J.F. 09/01/26 MMW 09/01/26 10/01/26	10/01/28	10/01/28	09/01/28
↓	↓	part moved it while doing profile. R.C: process.	10/01/26			10/01/28	10/01/28	10/01/28

NOTE: Date & initial all entries

Date: Thursday, 22/01/2009 2:33:17 PM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services		Drawing Name: BRACKET ASSEMBLY
Job Number: 45086		Part Number: D3121144
Job Number:		
Seq. #:	Machine Or Operation:	Description :
5.0	QC8	SECOND CHECK
Comment: SECOND CHECK		SL 09/01/29
6.0	D312121	Bolt
Comment: Qty.: 2.0000 Each(s)/Unit Total : 20.0000 Each(s)		
Pick: Qty Part Number Description Batch		2 D3121-21 Bolt B4353G
7.0	D3121241	Bearing Assembly
Comment: Qty.: 2.0000 Each(s)/Unit Total : 20.0000 Each(s)		Epo9/01/30
Pick: Qty Part Number Description Batch		2 D3121-241 Bearing Ass B43537
8.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1
Comment: SMALL & MEDIUM FAB RESOURCE 1 Assemble D3121-143 as per Dwg D3121.		Epo9/01/30 (10)
9.0	QC5	INSPECT WORK TO CURRENT STEP
Comment: INSPECT WORK TO CURRENT STEP		Jos.01.30 (10)
10.0	PACKAGING 1	PACKAGING RESOURCE #1
Comment: PACKAGING RESOURCE #1 Identify and Stock Location: 233		10x
11.0	QC21	FINAL INSPECTION/W/O RELEASE
Comment: FINAL INSPECTION/W/O RELEASE		09/02/03 (J)
Job Completion		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	H5086
Description: Bracket	Part Number:	D3121-114
Inspection Dwg: D3121 Rev: E		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.080	+/-0.010	.079"	✓			
0.300	+/-0.010	.298"	✓			
R0.375	+/-0.010	R .375"	✓			
1.54	+/-0.030	1.543"	✓			
0.350	+/-0.010	.350"	✓			
R0.25	+/-0.030	R .250"	✓			
Ø0.392	+0.002/-0.000	Ø .393"	✓			
Ø0.201	+0.005/-0.000	Ø .201"	✓			
0.100	+/-0.010	.095"	✓			
2.540	+/-0.010	2.535"	✓			
1.590	+/-0.010	1.587"	✓			
0.160	+/-0.010	.157"	✓			
0.400	+/-0.010	.401"	✓			
1.220	+/-0.010	1.223"	✓			
1.600	+/-0.010	1.603"	✓			
3.80	+/-0.030	3.794"	✓			
1.800	+/-0.010	1.803"	✓			
R0.50	+/-0.030	R .500"	✓			
0.130	+/-0.010	.127"	✓			
3.41	+/-0.030	3.387"	✓			
3.65	+/-0.030	3.637"	✓			
2.24	+/-0.030	2.210"	✓			
45°	+/-0.1°	45°	✓			
R0.25	+/-0.030	R .250"	✓			
3.97	+/-0.030	3.969"	✓			
R0.38	+/-0.030	R .380"	✓			
Ø0.392	+0.002/-0.000	Ø .393"	✓			
Ø0.201	+0.005/-0.000	Ø .201"	✓			
0.268	+/-0.010	.268"	✓			
R0.260	+/-0.010	R .260"	✓			
0.080	+/-0.010	.082"	✓			
0.300	+/-0.010	.303"	✓			
0.381	+/-0.010	.391"	✓			
0.201	+/-0.010	.207"	✓			

DART AEROSPACE LTD	Work Order:	H5086
Description: Bracket	Part Number:	D3121-114
Inspection Dwg: D3121	Rev: E	Page 2 of 2

FIRST ARTICLE INSPECTION CHECKLIST

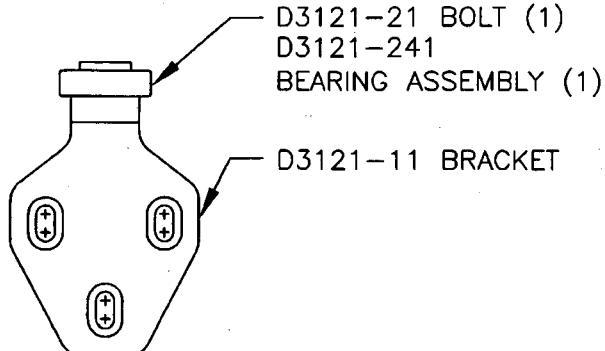
X First Article Prototype

Measured by:	J.F.	Audited by:	J.L.	Prototype Approval:	N/A
Date:	09/01/25	Date:	09/01/29	Date:	N/A

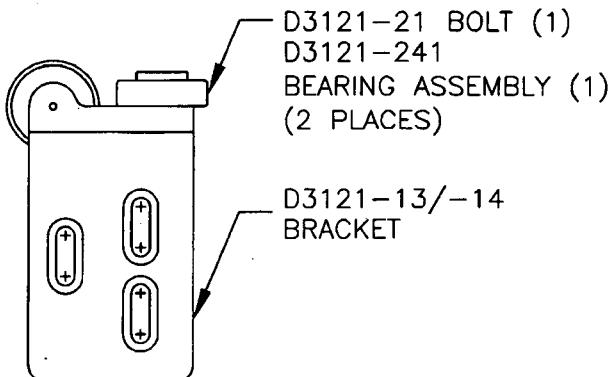
Rev	Date	Change	Revised by	Approved
A	03.12.08	New Issue P/O D3121-144	KJ/RF	
B	04.05.05	Dimensions changed/re-arranged per Dwg revision	KJ/JLM	
C	06.06.14	Dwg Rev. updated	KJ/JLM	
D	08.01.16	Dimensions updated per Dwg Rev E	KJ/EC/DD,	
E	08.05.20	0.032 dimension was 0.32	KJ/DD	

DART

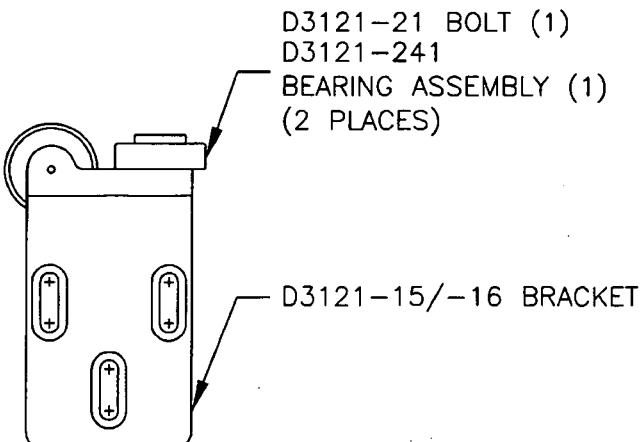
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CHECKED <i>#</i>	APPROVED <i>#</i>	DRAWING NO. D3121
DATE 07.11.07	TITLE BRACKET ASSEMBLY	REV. E SHEET 1 OF 10 SCALE 1:2

RELEASED
07.11.07**D3121-041 BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-33)

**D3121-043 (SHOWN) / D3121-044 (OPPOSITE)
BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-37/-38)

**D3121-045 (SHOWN) / D3121-046 (OPPOSITE)
BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-35/-36)

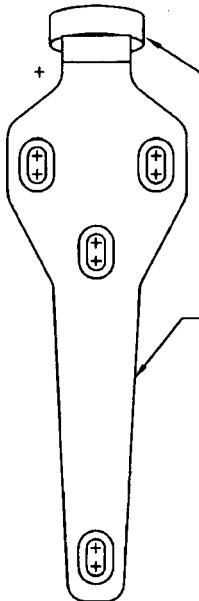
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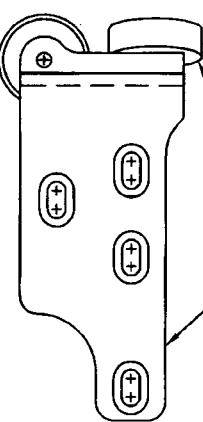
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CHECKED <i>4</i>	APPROVED <i>W</i>	DRAWING NO. D3121	REV. E SHEET 2 OF 10
DATE 07.11.07		TITLE BRACKET ASSEMBLY	SCALE 1:2



D3121-21 BOLT (1)
D3121-241
BEARING ASSEMBLY (1)

D3121-141 BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30-23001-01)

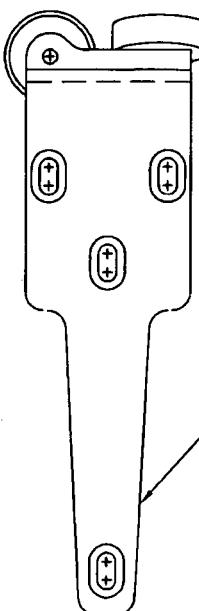
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07.11.07 W



D3121-21 BOLT (1)
D3121-241 BEARING ASSEMBLY (1)
(2 PLACES)

D3121-113/-114 BRACKET

**D3121-143 (SHOWN) / D3121-144 (OPPOSITE)
BRACKET ASSEMBLY**
(REPLACES PREMIER P/N B30-23000-03/-04)



D3121-21 BOLT (1)
D3121-241 BEARING ASSEMBLY (1)
(2 PLACES)

D3121-115/-116
BRACKET

**D3121-145 (SHOWN) / D3121-146 (OPPOSITE)
BRACKET ASSEMBLY**
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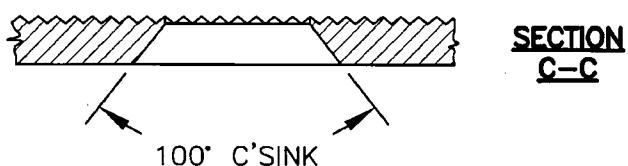
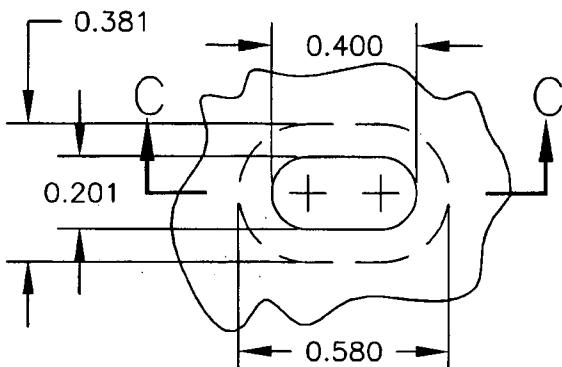
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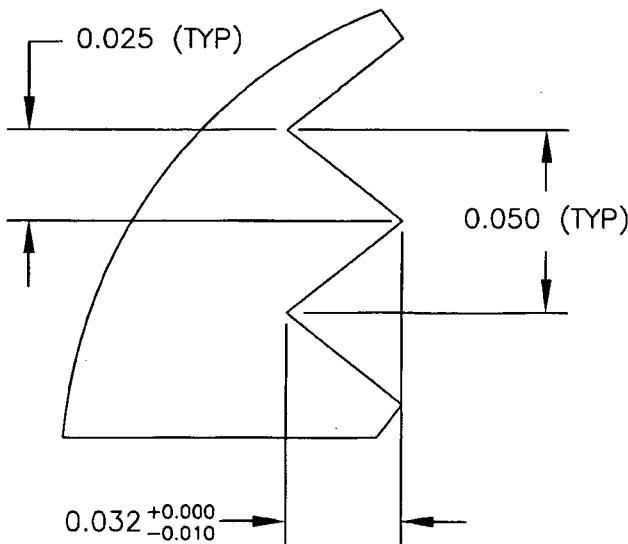
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DATE 07.11.07	TITLE BRACKET ASSEMBLY	SCALE 1:1	

DETAIL A:
SLOT DETAIL
SCALE 2:1
VIEW ROTATED



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DETAIL B:
RIDGE DETAIL
PARTIAL SECTION
SCALE 1:20



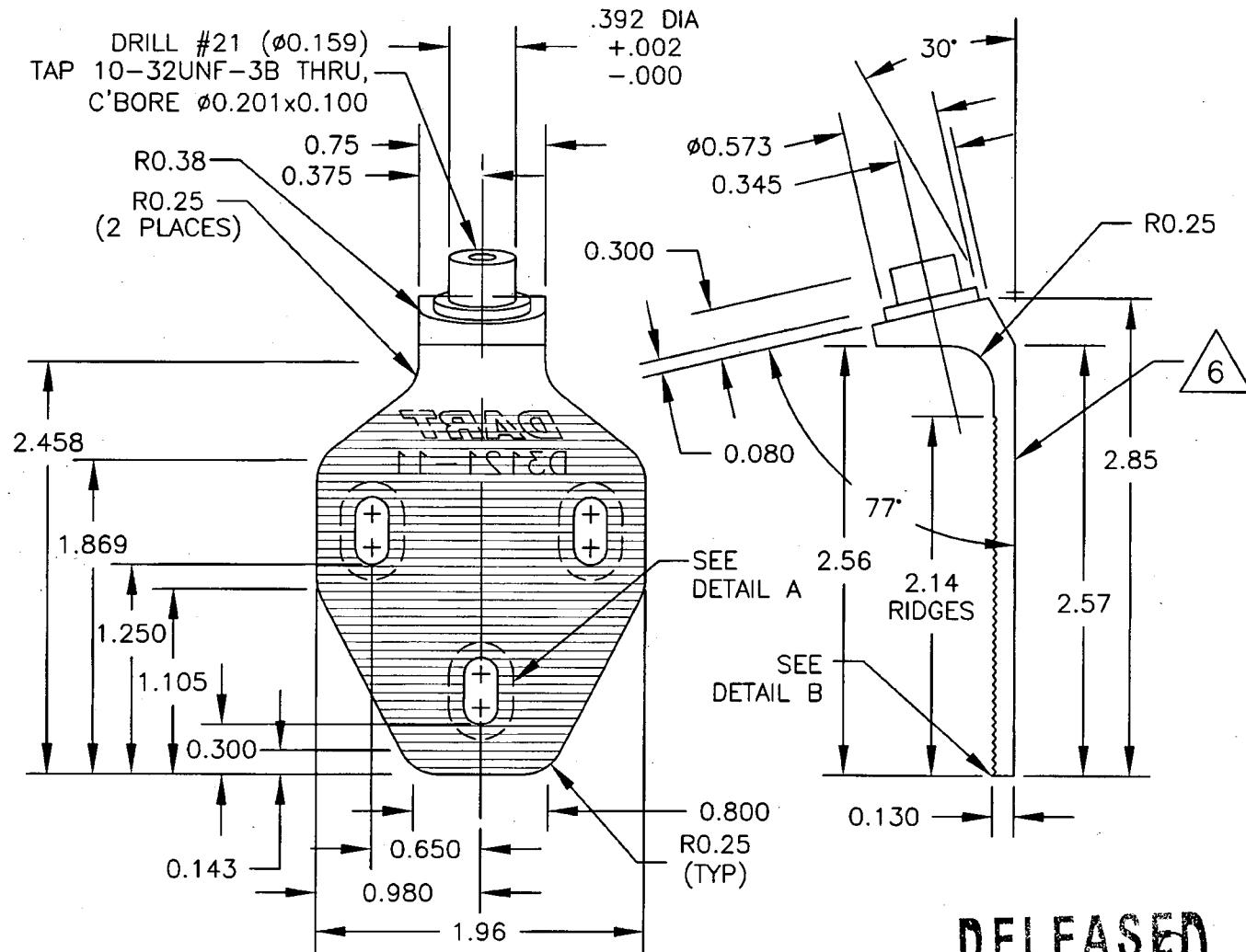
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DATE 07.11.07	TITLE BRACKET ASSEMBLY		SCALE 1:1	



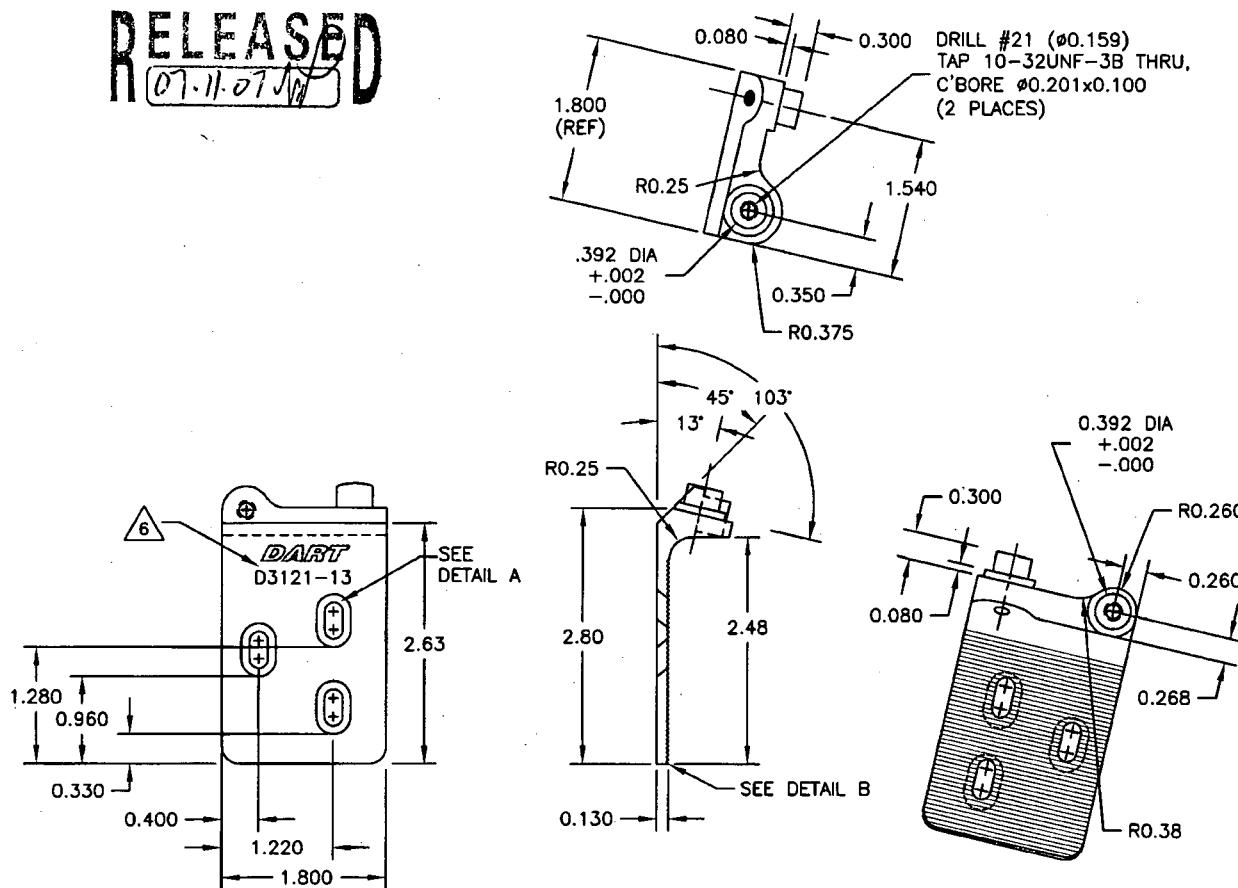
D3121-11 BRACKEI

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
MIN ULTIMATE TENSILE = 150 ksi
MIN YIELD TENSILE = 100 ksi
 - 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 3) ALL DIMENSIONS ARE IN INCHES
 - 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
 - 5) ENGRAVE DART P/N & LOGO AS SHOWN
 - 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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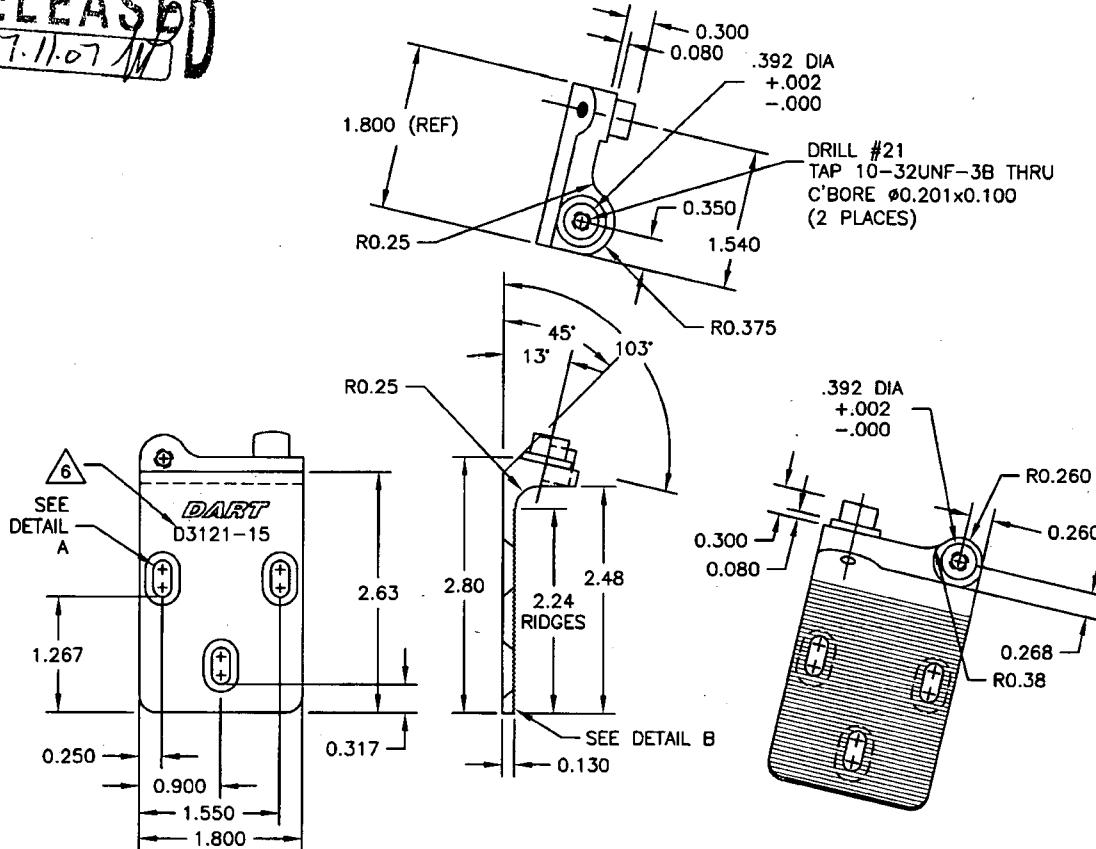
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CHECKED <i>A</i>	APPROVED <i>TH</i>	DRAWING NO. D3121	REV. E SHEET 5 OF 10
DATE 07.11.07	TITLE BRACKET ASSEMBLY	SCALE 1:2	

RELEASED
07.11.07**D3121-13 BRACKET (SHOWN)****D3121-14 BRACKET (OPPOSITE)**

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
MIN ULTIMATE TENSILE STRENGTH = 150 ksi
MIN YIELD TENSILE STRENGTH = 100 ksi
 - 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 3) ALL DIMENSIONS ARE IN INCHES
 - 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
 - 5) ENGRAVE DART P/N & LOGO AS SHOWN
 - 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005
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NO. 45086

DART

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CHECKED	<i>LE</i>	DRAWING NO. D3121
DATE	07.11.07	REV. E SHEET 6 OF 10 SCALE 1:2

RELEASED
07.11.07

D3121-15 BRACKET (SHOWN)
D3121-16 BRACKET (OPPOSITE)

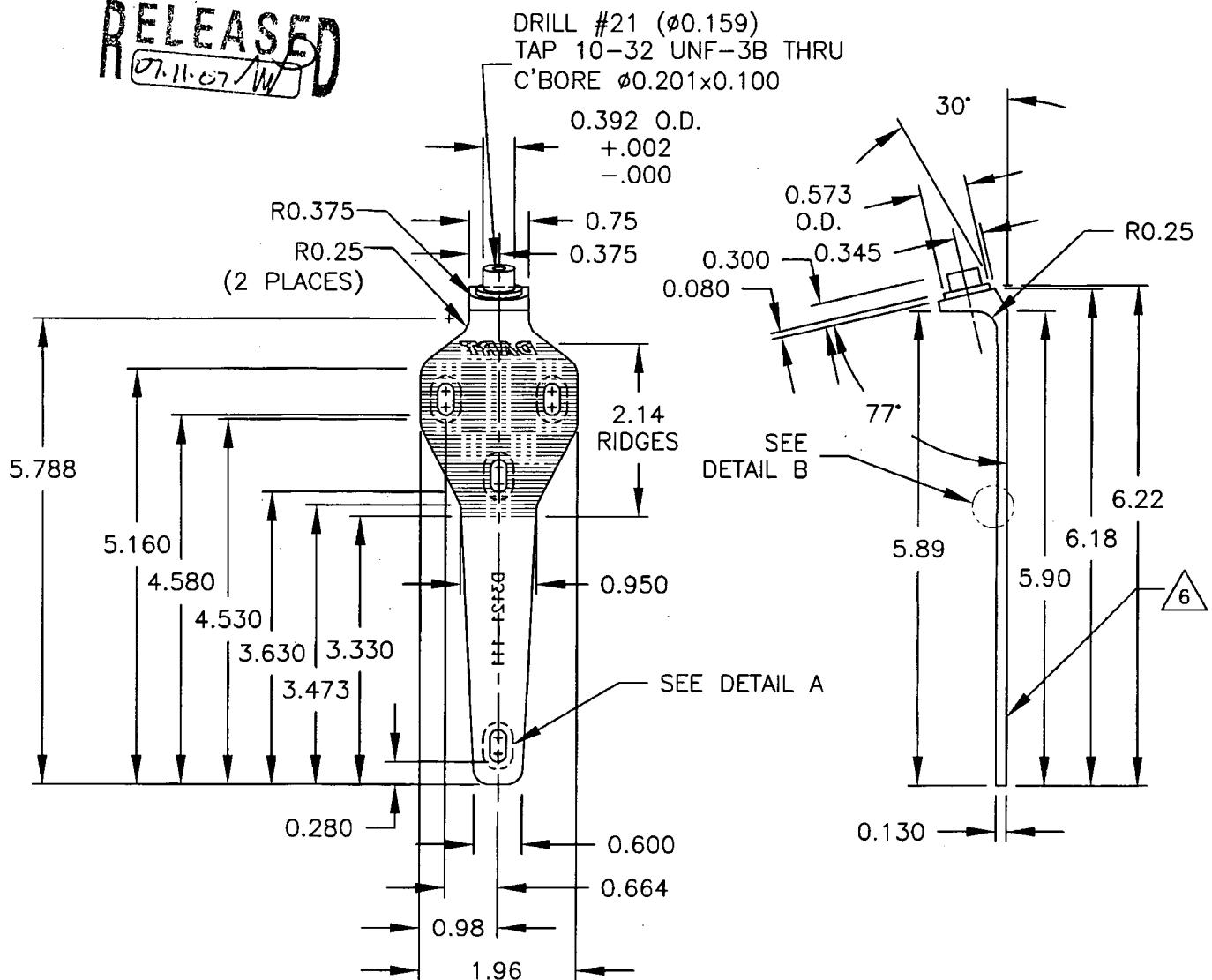
- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
 MIN ULTIMATE TENSILE = 150 ksi
 MIN YIELD TENSILE = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N AND LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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 NO. 45080



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DATE 07.11.07		TITLE BRACKET ASSEMBLY	SCALE 1:2	

RELEASED
07.11.07 / W



D3121-111 BRACKET

- 1) REPLACES PREMIER P/N B32-23001-11
 - 2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M)
MIN ULTIMATE TENSILE = 150 ksi
MIN YIELD TENSILE = 100 ksi
 - 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) ALL DIMENSIONS ARE IN INCHES
 - 5) BREAK ALL SHARP EDGES 0.005 TO 0.015
 - 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
 - 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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OR ORDER**

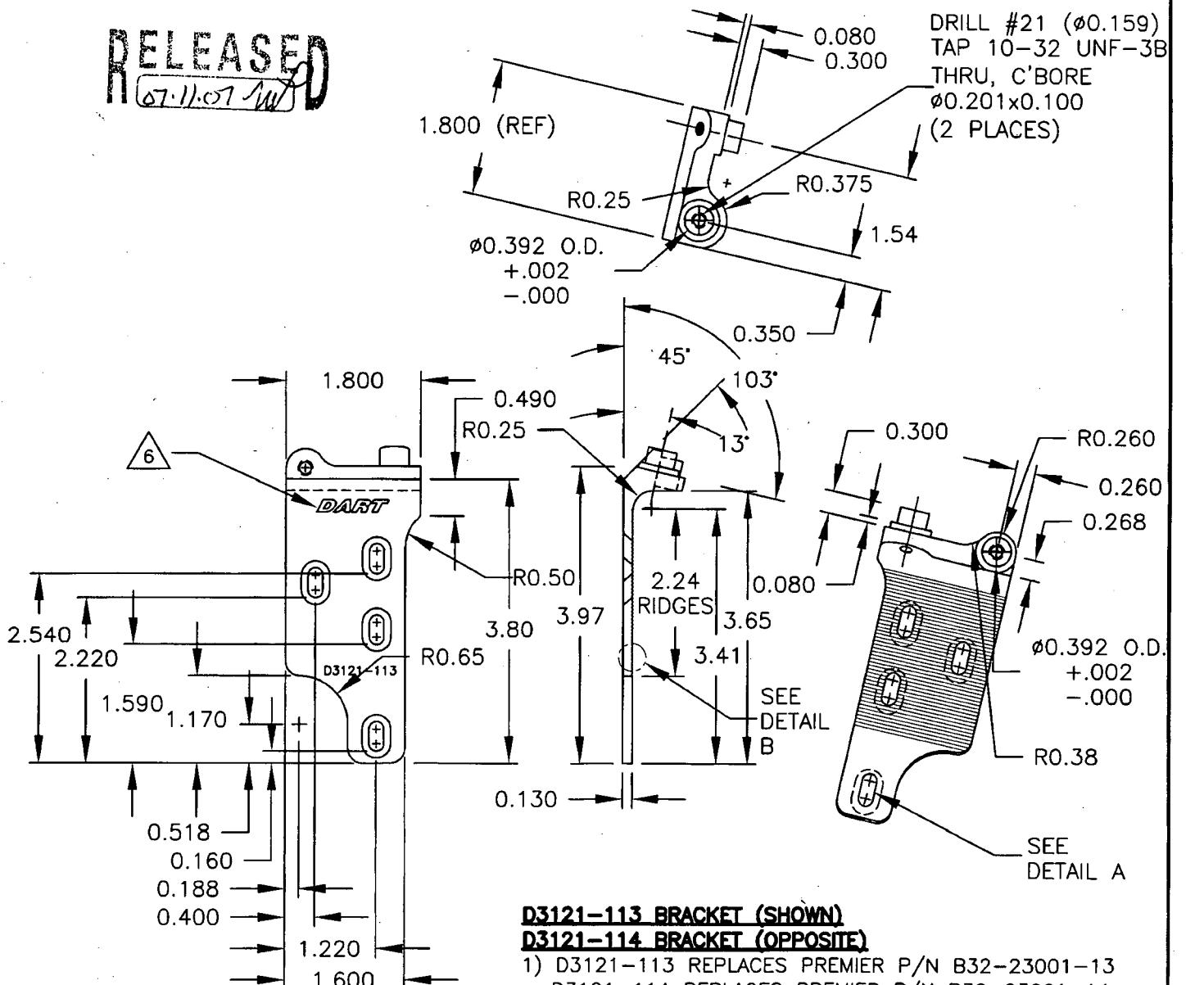
WORK ORDER
1508

W. B. D.



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DATE 07.11.07	TITLE BRACKET ASSEMBLY		SCALE 1:2	

RELEASED
07-11-07



D3121-113 BRACKET (SHOWN)

D3121-114 BRACKET (OPPOSITE)

- 1) D3121-113 REPLACES PREMIER P/N B32-23001-13
D3121-114 REPLACES PREMIER P/N B32-23001-14

2) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)

MIN ULTIMATE TENSILE STRENGTH = 150 ksi SHOP COPY
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MIN YIELD TENSILE STRENGTH = 100 ksi

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED UNCONTROLLED COPY

4) ALL DIMENSIONS ARE IN INCHES SUBJECT TO AMENDMENT

5) BREAK ALL SHARP EDGES 0.005 TO 0.015 WITHOUT NOTICE

6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN WORK ORDER #15084

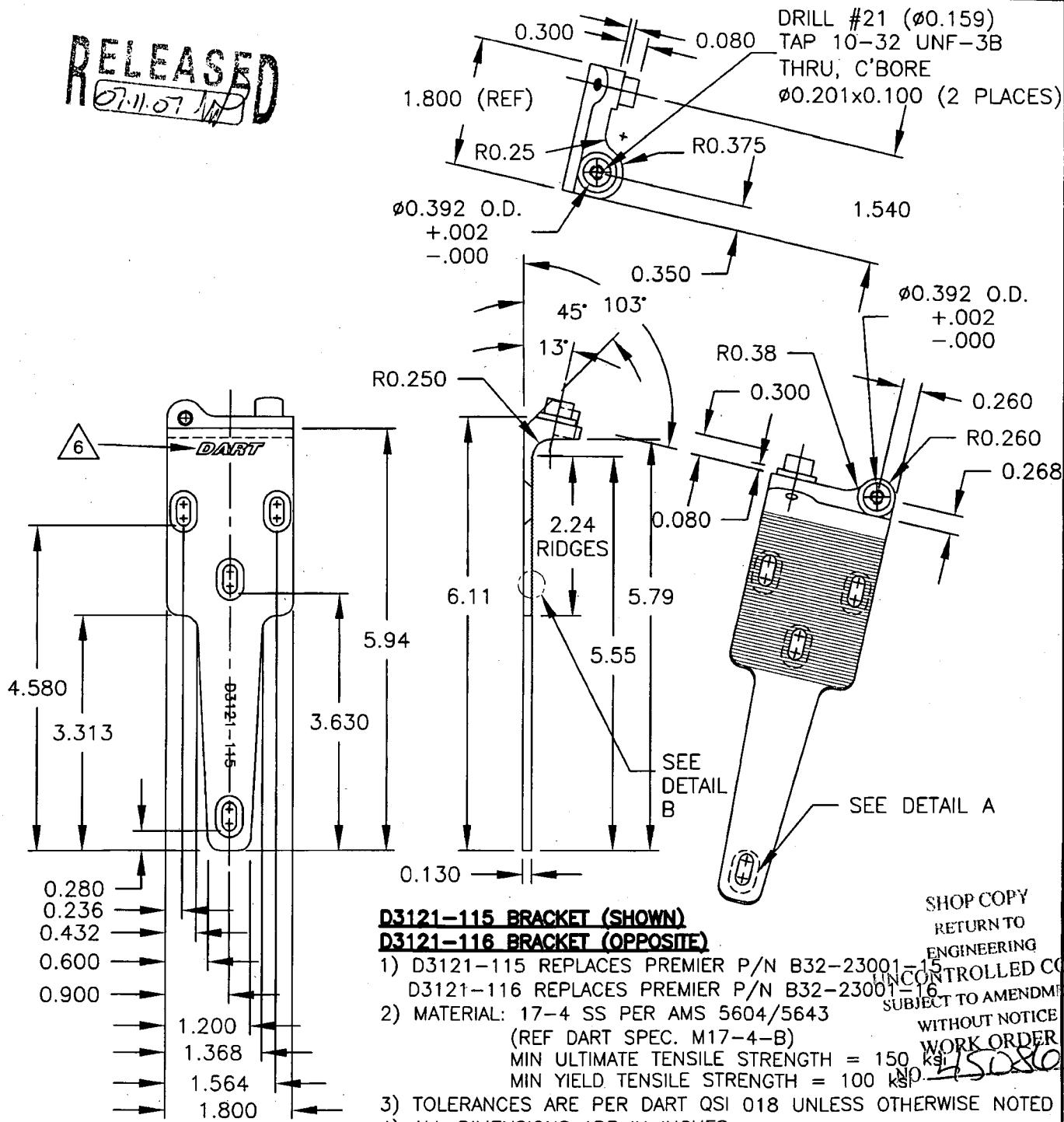
7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 9 OF 10
DATE	TITLE	SCALE	
07.11.07	BRACKET ASSEMBLY	1:2	

RELEASED
07.11.07

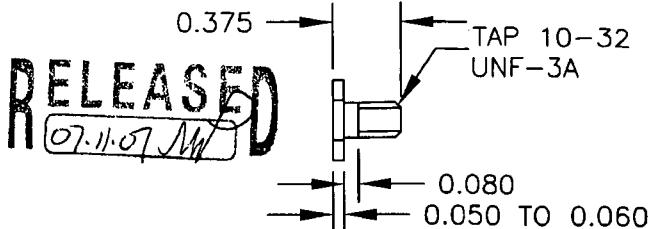
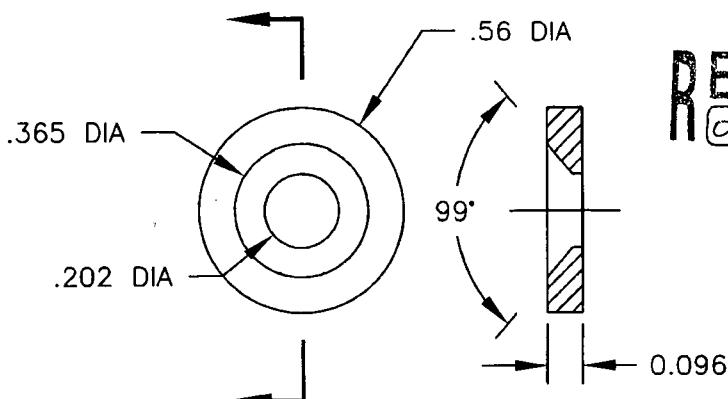
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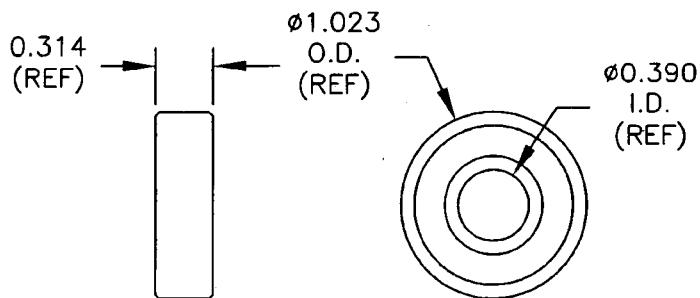
DART

DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3121	REV. E SHEET 10 OF 10
DATE 07.11.07		TITLE BRACKET ASSEMBLY	SCALE 1:1



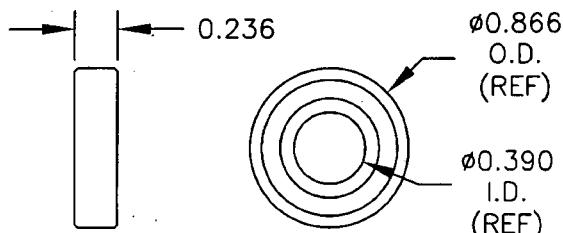
D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-19 BEARING (SCALE 1:1)

- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM
FAFNIR P/N 9100KDD
- 2) ALL DIMENSIONS ARE IN INCHES

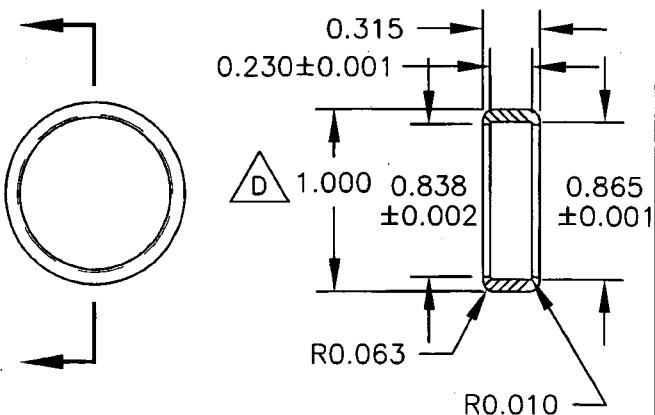


D3121-23 BEARING (SCALE 1:1)

- 1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z
OR KML P/N 6900-2Z
- 2) ALL DIMENSIONS ARE IN INCHES

D3121-21 BOLT (SCALE 1:1)

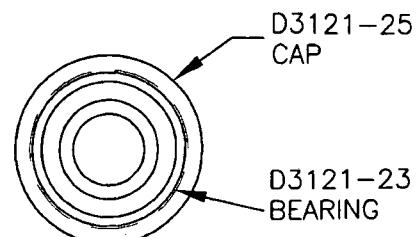
- 1) MATERIAL: AISI 303 SS HEX, ANNEALED (REF DART SPEC. M303H0.500)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-25 CAP (SCALE 1:1)

- 1) MATERIAL: DELRIN ROD, Ø1.25 (REF DART SPEC. M-DELRIN-R1.250)
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

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D3121-241 BEARING ASSEMBLY (SCALE 1:1)